Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Connect America Fund	)	WC Dkt. 10-90
	)	
A National Broadband Plan for Our Future	)	GN Dkt. 09-51
	)	
Establishing Just and Reasonable Rates for Local Exchange Carriers	)	WC Dkt. 07-135
	)	
High-Cost Universal Service Support	)	WC Dkt. 05-337
	)	
Developing an Unified Intercarrier Compensation Regime	)	CC Dkt. 01-92
	)	
Federal-State Joint Board on Universal Service	)	CC Dkt. 96-45
	)	
Lifeline and Link-Up	)	WC Dkt. 03-109
	)	
Universal Service Contribution Methodology	)	WC Dkt. 06-122

COMMENTS OF GOOGLE INC.

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EXECUTIVE SUMMARY

The FCC must undertake comprehensive reform of the universal service fund ("USF") and intercarrier compensation ("ICC") systems. Timely and effective reform will foster broadband deployment and adoption and facilitate the transition to all-Internet-Protocol ("IP") networks. There will be significant public benefits from ensuring that every American has access to robust broadband capabilities. Moreover, completing the transition of the nation's communications network infrastructure to all-IP will lower costs, generate greater efficiencies, and promote innovation and investment. Achieving these goals is essential to our economic recovery and global competitiveness.

Google recently joined other high-tech and online companies and users in proposing a framework (the "Tech/Users Framework") for restructuring USF and ICC that meets these policy objectives. The Tech/Users Framework supplements the commendable work of some incumbent wireline carriers to move reform forward (the "Wireline Incumbent Proposal"). The Tech/Users Framework's proposed modifications to the Wireline Incumbent Proposal in particular will help (1) reduce inefficient and uneconomic carrier charges and create incentives to deploy all-IP networks, and (2) expand broadband deployment and adoption.

The FCC should encourage a swift transition to more modern, efficient, and flexible IP networks by expeditiously acting to immediately reduce and eventually eliminate high per-minute carrier access charges. Establishing bill-and-keep as the unified pricing methodology for any traffic that touches an IP network, including IP-to-TDM traffic, will foster innovation and investment. IP traffic termination costs are "vanishingly small." While the phased-in access charge rate reductions in the Wireline Incumbent Proposal are directionally sensible, the FCC should not compel Voice-over-IP ("VoIP") providers and their users to subsidize outmoded legacy networks. A perpetual per-minute access charge of $0.0007 also will slow the transition to all-IP.

Google urges the FCC to facilitate a deregulatory model for IP-to-IP traffic by allowing the market to develop compensation mechanisms in the first instance. Regulators can serve as a backstop to provide oversight and, if necessary, a neutral forum for resolving disputes. Nevertheless, the FCC should clarify obligations regarding IP interconnection, including, at a minimum, affirming local carriers' obligations to negotiate in good faith.

To promote universal broadband connectivity, Google supports creation of the two broadband support funds described in the Tech/Users Framework: Broadband Build and Broadband Operations. Broadband Build would provide one-time, targeted, technology-neutral funding to deploy broadband in unserved areas, while Broadband Operations funding would be available where needed for defined, renewable time periods (*e.g.,* three years). Providers that apply for funding from either fund would be required to meet certain accountability targets. The States can and should play an important role in assessing which areas are unserved, reviewing applications, and enforcing accountability measures. These improvements will nurture competition from wireless and satellite providers and help bring broadband to all 7 million unserved households.

Holistic reform also requires parallel consideration of how broadband subsidies actually will be funded. There is broad agreement that the current revenues-based contribution approach is increasingly unsustainable. By contrast, a connections-based approach that assesses the number and capacity of an end-user's communications network connections would mirror the shift of networks and services to broadband and IP. By assessing all network connections, from analog to the highest-speed broadband, the FCC can create an equitable, sustainable mechanism to ensure to fund broadband build-out and operations.

We do not underestimate the challenges of true and meaningful reform. Google believes, however, that the continued diligent efforts of all stakeholders working together can create opportunities to leverage the enormous potential of modern networks and new technologies to benefit all Americans.

TABLE OF CONTENTS

Before the
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In the Matter of	)	
	)	
Connect America Fund	)	WC Dkt. 10-90
	)	
A National Broadband Plan for Our Future	)	GN Dkt. 09-51
	)	
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	)	
High-Cost Universal Service Support	)	WC Dkt. 05-337
	)	
Developing an Unified Intercarrier Compensation Regime	)	CC Dkt. 01-92
	)	
Federal-State Joint Board on Universal Service	)	CC Dkt. 96-45
	)	
Lifeline and Link-Up	)	WC Dkt. 03-109
	)	
Universal Service Contribution Methodology	)	WC Dkt. 06-122

COMMENTS OF GOOGLE INC.

Google Inc. files these comments in response to the Federal Communications Commission's ("FCC" or "Commission") Public Notice[1] inquiring further into modernizing the federal Universal Service Fund ("USF") and intercarrier compensation ("ICC") systems.[2]

[1] *Further Inquiry Into Certain Issues in the Universal Service-Intercarrier Compensation Transformation Proceeding*, Public Notice, DA 11-1348 (rel. Aug. 3, 2011) ("Public Notice").

[2] *In the Matter of Connect America Fund, et al.,* Notice of Proposed Rulemaking and Further Notice of Proposed Rulemaking, 26 FCC Rcd. 4554 (2011) ("NPRM").

INTRODUCTION

The current USF and ICC systems should be reformed to promote adoption and deployment of broadband and the transition to all-Internet Protocol ("IP") networks. The present regime has resulted in harmful instability and uncertainty as carriers attempt to transition to broadband and all-IP infrastructure.[3] Legacy pricing and regulatory mechanisms, including per-minute access charges, do not make sense for IP networks, impede network modernization, and distort carriers' investment incentives.[4] Comprehensive reform along the lines proposed by the FCC holds enormous potential to promote innovation and investment in IP facilities and broadband.[5]

Google commends the considerable work done by a number of parties to formulate proposals for USF and ICC reform.[6] The incumbent wireline carriers in particular should be applauded for their proposal (the "Wireline Incumbent Proposal") and other significant efforts to date. Google, with other high-tech and online companies and users, recently submitted their own proposal – the "Tech/Users Framework"[7] – intended to supplement and improve upon the Wireline Incumbent Proposal. In

[3] NPRM at ¶ 41.

[4] *Id.* at ¶ 40.

[5] *Id.* at ¶ 44.

[6] *See, e.g.*, Letter from AT&T, CenturyLink, FairPoint Communications, Frontier, Verizon and Windstream, to Julius Genachowski, Chairman, FCC, *et al.*, WC Dkt. 10-90, *et al.* (filed July 29, 2011) ("*ABC Plan*"); Letter from United States Telecom Association, AT&T, CenturyLink, FairPoint Communications, Frontier, Verizon, Windstream, National Telecommunications Cooperative Association, OPASTCO, and Western Telecommunications Alliance, to Julius Genachowski, Chairman, FCC, *et al.*, WC Dkt. 10-90, *et al.* (filed July 29, 2011) (collectively, the "Wireline Incumbent Proposal").

[7] Letter from Ad Hoc Telecommunications Users Committee, Google Inc., Skype Communications S.A.R.L., Sprint Nextel Corporation, and Vonage Holdings Corp. to Julius Genachowski, Chairman, FCC, *et al.*, WC Dkt. 10-90, *et al.* (filed Aug. 18, 2011) ("Tech/Users Letter").

particular, we seek to assist the FCC in better achieving the goals of broadband adoption and deployment and the transition to all-IP networks. Google expects that the Tech/Users Framework, taken together with elements from the NPRM and the Wireline Incumbent Proposal, will propel the FCC on a necessary and timely path to true reform.[8]

DISCUSSION

I. The Transition to Broadband and IP Networks Creates Opportunity for Growth and Innovation

A. Reform Efforts Must Be Guided by the Goals of Deploying Broadband and Transitioning to All-IP Networks

As the FCC recognized, USF and ICC reform should advance the key national priorities of promoting broadband adoption and deployment and facilitating the transition to all-IP networks. As emphasized in the *National Broadband Plan*, increased broadband deployment and adoption creates vast benefits.[9] Broadband "is no longer a luxury."[10] It is a "force multiplier,"[11] creating greater economic opportunity; improved public safety, education, and healthcare; better social ties and civic participation; and enhanced quality of life.[12] Broadband connections serve as the gateways for users to access services and

[8] These comments expand upon the Tech/Users Framework and provide additional detail to supplement the Tech/Users Letter. These additional details do not necessarily reflect the views of all parties to the Tech/Users Framework.

[9] Omnibus Broadband Initiative, *Connecting America: The National Broadband Plan*, GN Dkt. 09-51 (2010) ("*National Broadband Plan*").

[10] Letter from Sen. John Kerry (D-Mass.) and Sen. Mark Warner (D-Va.) to Julius Genachowski, Chairman, FCC, *et al.* (filed July 5, 2011) ("Kerry/Warner Letter").

[11] Comments of AT&T, Inc. at iii, GN Dkt. 09-51 (filed June 8, 2009).

[12] *See, e.g.*, NPRM at ¶¶ 3-4; *National Broadband Plan* at 129, 266; *Bringing Broadband to Rural America: Update to Report on a Rural Broadband Strategy*, ¶ 2, GN Dkt. 11-16 (rel. June 17, 2011) ("*Rural Broadband Report*"); Comments of Google Inc. at 1, GN Dkt. 09-51 (filed June 8, 2009) ("Broadband, when utilized as an optimal Internet and communications platform, holds the promise to catapult America to the next level of competitiveness, productivity, education, health, and security.").

information online. Thus, a national policy promoting universal broadband connectivity with increasingly greater speeds and robustness is essential.[13]

Transitioning legacy TDM networks to all-IP is also of paramount importance.[14] Although many local communications networks in the United States already are being upgraded,[15] true end-to-end IP transmission everywhere is not yet a reality. A full transition will bring about substantial benefits. IP networks are more efficient, decrease costs, and increase revenue potential for network providers.[16] Compared with TDM-based networks, IP also improves network reliability and survivability and increases service and network flexibility.[17]

Unlike TDM, which was premised on a centrally-controlled network and separate SS7 signaling, the modular, layered IP network model enables smart devices and terminals to run countless services and applications over a fast, stable, and application-agnostic platform spanning numerous physical network architectures. This advanced

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[13] *See, e.g.*, Reply Comments of Google Inc. at 14, GN Dkt. 09-51 (filed July 21, 2009) ("[T]he robustness of broadband capacity must be sufficient to enable users to interact with the full richness and depth of the Internet.").

[14] *See* NPRM at ¶¶ 506, 527; *National Broadband Plan* at 59, 142. *See also, e.g.*, Comments of Comcast Corporation at 3-6, WC Dkt. 10-90, *et al.* (filed Apr. 18, 2011); Comments of the Kansas Corporation Commission at 36-37, WC Dkt. 10-90, *et al.* (filed Apr. 18, 2011); Comments of the California Public Utilities Commission at 20-22, WC Dkt. 10-90, *et al.* (filed Apr. 18, 2011).

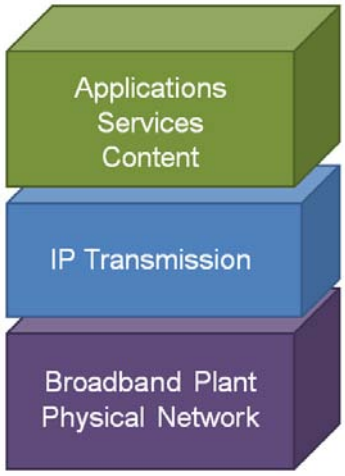
[15] *See* Letter from Kirk Burgee, Chief of Staff, Wireline Competition Bureau, to Marlene H. Dortch, Secretary, FCC, WC Dkt. 10-90, *et al.*, Attach. at 11 (filed May 3, 2011) (attaching Apr. 26, 2011 presentation by Fred Kemmerer, Chief Technology Officer, GENBAND, Inc., *Industry Trends: Circuit to Packet*).

[16] *See* NPRM at ¶ 506.

[17] *See id. See also, e.g.*, Jim Hodges, *Network Modernization in the Era of All-IP Networks*, White Paper, Heavy Reading, at 5-7 (May 2011) ("*Network Modernization*"); Redacted Letter from Russell M. Blau, Counsel to Neutral Tandem, Inc., to Marlene H. Dortch, Secretary, FCC, at 1-2, CC Dkt. 01-92, GN Dkt. 09-51 (filed Oct. 22, 2010).

network design permits carriers and others to develop and deploy enhanced applications and services independent of manufacturers' switches or other network constraints, creating an optimal platform for innovative and improved services.[18]

IP Network Layers



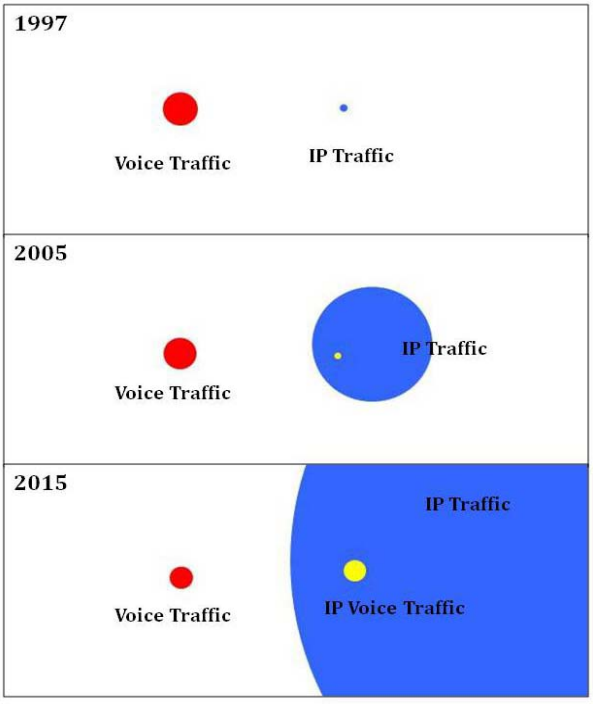
As recently as fifteen years ago, network traffic was predominately comprised of circuit-switched TDM traffic from voice telephone calls. Regulations, policies, and traffic exchange payments all were premised upon engineering and economic assumptions developed in the 1980s about how traffic flowed through the network, how costs were incurred, and how revenues would be recovered. But, a shift away from TDM-to-TDM traffic patterns is well underway. Much telecommunications traffic now either originates or terminates on an IP network. Although TDM currently constitutes roughly 70% of fixed lines in North America, by 2015 that figure is expected to drop to about 30%.[19]

[18] *See* NPRM at ¶ 506. IP also increases customization, virtualization, portability, scalability, and intelligence, all of which enhance productivity and opportunity. *Id.* at ¶ 527.

[19] *Network Modernization* at 9.

Stand-alone voice is becoming a "small tail" on the very "large dog" of all network traffic. As a percentage of total network traffic, traffic for video, the web, cloud-based applications, and online video games already dwarfs traditional voice service traffic, and this trend will accelerate.[20] Wireless data and voice traffic also has increased dramatically, and traffic flows and compensation schemes associated with wireless service differ significantly from those for traditional legacy wireline voice traffic. Person-to-person voice communication remains an important service, but is no longer the driving force on the network in terms of either amount of traffic or predominant services.

Evolution of Network Traffic[21]



[20] Cisco, *Cisco Visual Networking Index: Forecast and Methodology, 2010-2015* (June 2011).

[21] Visualization based on data and analysis from: K. G. Coffman and A. M. Odlyzko, *The Size and Growth Rate of the Internet*, First Monday (Oct. 1998); Cisco, *Global IP Traffic Forecast and Methodology, 2006-2011* (updated Jan. 2008); Cisco, *Cisco Visual Networking Index: Forecast and Methodology, 2010-2015* (June 2011); FCC, *Trends in Telephone Service*, Wireline Competition Bureau (Sept. 2010). *See also* Letter from Donna N. Lampert, Counsel for Google Inc., to Marlene H. Dortch, Secretary, FCC, WC Dkt. 10-90, *et al*. (filed June 16, 2011).

The economics of IP also differ markedly from those of TDM-based traffic. As explained in the *National Broadband Plan*, costs to terminate an IP call do not depend on whether traffic is local or long distance.[22] Moreover, while TDM traffic, such as a voice telephone call, is carried on and occupies completely a single physical channel, IP enables delivery of multiple communications services simultaneously on a single line. The incremental cost of terminating an IP voice call is virtually zero, and, with the growing conversion of networks to all-IP, costs should continue to decline.[23]

The marketplace also is driving changes in network traffic patterns. For example, the rise of content delivery networks ("CDNs") represents an efficient traffic routing alternative that improves the consumer experience, reduces transmission costs for the local carrier, and helps prevent or alleviate potential network congestion issues. Some carriers also are striking compensation and interconnection agreements outside of the traditional Section 251(c) regulatory paradigm.[24] These new types of business arrangements underscore the growing disconnect between the present ICC regime and the evolving network.

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[22] *National Broadband Plan* at 142.

[23] *See, e.g.*, Comments of Sprint Nextel at 17, WC Dkt. 10-90, *et al.* (filed Apr. 18, 2011) ("Sprint Nextel USF/ICC Comments"); *In the Matter of High-Cost Universal Service Support*, Order on Remand and Report and Order and Further Notice of Proposed Rulemaking, 24 FCC Rcd. 6475, ¶¶ 260-61 (2008) ("*2008 Order and ICC/USF FNPRM"*), *aff'd Core Communications, Inc. v. FCC*, 592 F.3d 139 (D.C. Cir. 2010), *cert denied*, 131 S. Ct. 597, 626 (2010). *See also* Robert McDowell, Commissioner, FCC, Keynote on Technology and Democracy at Broadband for All: A Networked and Prosperous Society, Stockholm, Sweden (June 27, 2011) ("[T]he cost of a voice call to almost anywhere on the globe is virtually zero thanks to [VoIP] technologies.").

[24] *See, e.g.*, Stacey Higginbotham, *Bandwidth.com and Verizon Just Made VoIP Sustainable*, Gigaom (Jan. 18, 2011), *available at* http://gigaom.com/broadband/bandwidth-com-and-verizon-just-made-voip-sustainable/.

To keep pace with this evolution of network technologies and traffic flows, our nation's regulatory framework must be updated. To reflect the dynamic underpinnings of technology, this restructuring should encompass market-driven policies and move away from unnecessary, and even counterproductive, heavy regulation.

B. Updating ICC and USF Will Help Network Providers Adapt to Modern Networks and Opportunities

Most network providers are aggressively deploying broadband facilities and expanding IP services, capitalizing on the efficiencies and additional revenue sources they enable.[25] Estimates show profit margins for broadband Internet access service to be as high as 69 percent;[26] broadband provider gross margins to exceed 93 percent;[27] and average profit margins for video service to exceed 30 percent.[28]

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[25] *See, e.g.*, Sean Buckley, *SureWest's Broadband Gains Help Offset Q2 Landline Voice Losses*, FierceTelecom, July 29, 2011, *available at* http://www.fiercetelecom.com/story/surewests-broadband-gains-help-offset-q2-landline-voice-losses/2011-07-29 (growing broadband revenue outpaces falling PSTN revenue); Sean Buckley, *Cincinnati Bell's Q2 Results Get Boost from Data Center Service Gains*, FierceTelecom, Aug. 4, 2011, *available at* http://www.fiercetelecom.com/story/cincinnati-bells-q2-results-get-boost-data-center-service-gains/2011-08-04 (falling PSTN revenue supplemented by 4G, IPTV, and data center revenues).

[26] Comments of Free Press at 42, GN Dkt. 09-137 (filed Sept. 4, 2009).

[27] *See Quick Take – Comcast – Designated Driver at the Buyback Party*, Bernstein Research (Feb. 16, 2011).

[28] *See* Ben Piper, *Is the Dumb Pipe a Smart Move for Cable?*, Strategy Analytics Multiplay Market Dynamics Blog, Apr. 28, 2011, *available at* http://blogs.strategyanalytics.com/MMD/post/2011/04/28/Is-the-Dumb-Pipe-a-Smart-Move-for-Cable.aspx (referencing a study by Strategy Analytics). Small and rural providers also are successfully upgrading their networks and evolving their services. *See, e.g.*, Richard Martin, *All-IP: A Crucial Differentiator for Rural Telcos*, Xchange Magazine (Sept. 2009), *available at* http://www.metaswitch.com/news/Archive-Xchange-Magazine-Inside-the-IP-Evolution-Sept152009.pdf (describing how EATEL and Blackfoot Telecommunications Group transitioned to IP, noting that Blackfoot reduced its switching costs by 50 percent); Press Release, *Rural ISPs Flock to Google Apps for New Services*, NeoNova (Aug. 10, 2011), *available at* http://www.neonova.net/sites/default/files/CustomersFlocktoGoogle.pdf (discussing NeoNova's success partnering with rural telephone companies to sell Google Apps services to rural telephone companies' customers).

For many network providers, revenues – and incentives to upgrade and improve networks – flow from new broadband and IP-based services, including multichannel video and broadband Internet access, as well as voice.[29] These providers have embraced evolving network and traffic patterns and have adapted their businesses to marketplace incentives.

Historically, however, many wireline incumbent local exchange carriers ("ILECs") have looked to what has been described as a "three legged stool" of: (1) voice telephony end-user revenues; (2) ICC charges (especially per-minute carrier access charges); and (3) universal service and similar public subsidy mechanisms to support their telephone network operations and services.[30] Despite technological advances, some ILECs find themselves under significant financial pressure and claim that their "three-legged stool" is beginning to falter as PSTN utilization steadily decreases.[31] Many wireline carriers are losing traditional wireline voice telephony subscribers, resulting in

[29] *See, e.g.*, Omnibus Broadband Initiative, *The Broadband Availability Gap* 50 (Technical Paper No. 1, 2010). The FCC's modeling of Average Revenue Per User ("ARPU") forecasts for data services provided by telecommunications companies generates an ARPU of $36.00 to $44.00 per month and an ARPU of $50.00 to $80.00 per month for video services offered by telecommunications companies. Special access and other non-regulated revenues also play a growing role in revenues for both rural and non-rural incumbent LECs. Comments of the Federal State Joint Board on Universal Service at 33-34, WC Dkt. 10-90, *et al.* (filed May 2, 2011) ("Federal State Joint Board Comments").

[30] *See* Letter from Cheryl L. Parrino, Counsel to Nebraska Rural Independent Companies, to Marlene H. Dortch, Secretary, FCC, WC Dkt. 10-90, *et al.* (filed June 17, 2011); Comments of the Independent Telephone and Telecommunications Alliance at 6, WC Dkt. 10-90, *et al*. (Apr. 1, 2011).

[31] *See, e.g.*, Comments of AT&T, Inc. at 12-14, WC Dkt. 10-90, *et al*. (filed Apr. 18, 2011) ("AT&T USF/ICC Comments") (noting that incumbent LECs have lost 47% of interstate switched access minutes and that the POTS business model is failing); Letter from Cheryl L. Parrino, Counsel to Nebraska Rural Independent Companies, to Marlene H. Dortch, Secretary, FCC, WC Dkt. 10-90, *et al*. (filed June 17, 2011) (stating that loss of ICC revenues could cause some rural carriers to go bankrupt).

revenue losses and diminished carrier access charge revenues.[32] In the face of these market changes, the FCC either can choose to do nothing, allowing these providers to falter; prop up the existing but outmoded voice-centric system; or adopt a fresh approach that embraces the benefits of broadband and IP networks.

Traditionally, implicit subsidies and the USF "high cost fund" helped ILECs meet their voice "revenue requirements." Today, the unsustainable nature of this system – which relies disproportionately on legacy wireline voice – demonstrates that the FCC must reexamine its criteria for determining whether a geographic area requires "high cost" support. Restructured policies must not simply incorporate the assumptions and flaws of the previous framework.[33] Rather than assume that all current "high cost" recipients require continuing subsidies, the FCC should distinguish, at a minimum, between the costs of initial broadband deployment on the one hand, and ongoing operating costs on the other.

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[32] *See, e.g.*, Letter from David C. Duncan, President, Iowa Telecommunications Association, to Marlene H. Dortch, Secretary, FCC, WC Dkt. 10-90, *et al*. (filed May 19, 2011) (stating that the average rate of return of 108 Iowa rural LECs was 2.63% in 2010, and that 45 of the 108 had a rate of return of less than 0%); Comments of Texas Statewide Telephone Cooperative, Inc. at 4-5 and Attach. 3, WC Dkt. 10-90, *et al.* (Apr. 18, 2011) (describing and providing data on the "fairly precarious financial state" of a small Texas incumbent LEC due to an erosion of access lines and minutes of use); Comments of the Rural Independent Competitive Alliance at 18, WC Dkt. 10-90, *et al.* (Apr. 18, 2011) (stating that, like incumbent LECs, their member rural LECs have seen a decline in access minutes and struggle with difficulties of relating to a part TDM, part IP world).

[33] *See National Broadband Plan* at 141 (finding that "a comprehensive reform program is required" because "the current regulatory framework will not close the broadband availability gap"). The *Rural Broadband Report* confirms that current USF/ICC mechanisms have not been successful in bringing broadband to all rural Americans. *Rural Broadband Report* at ¶ 5 ("[M]uch more remains to be done to ensure that every American has the opportunity to participate in the broadband era. . . . The Commission must reform and modernize the [USF] programs and [ICC] system to ensure that broadband providers have appropriate incentives to deploy and encourage adoption of broadband in rural areas.").

While a full transition from TDM technology may be challenging, meeting the FCC's broadband and IP goals will re-invigorate available carrier revenues and subsidy streams. Already, many rural and non-rural providers are focusing heavily on new and increasing customer revenues from services enabled by leveraging advanced IP networks, rather than relying primarily on either ICC or USF. As IP service utilization grows, benefits expand for all users, creating the classic "network effect." The deployment and utilization of IP technologies and services also reduce operating costs currently recovered through implicit ICC and explicit USF subsidies.[34] Together these cost reductions and expanded revenue opportunities will help ensure adequate and sustainable market-based support.

A strong public policy that supports broadband build-out and ensures viable ongoing operations is not enough; broadband providers also must act affirmatively to create financial sustainability and well-being. Smaller or less efficient carriers may need to adjust end-user rates to the national average,[35] develop business structures to distribute costs and gain scale advantages, or take other steps to adjust to emergent circumstances. Revenues from "unregulated" communications services also should be considered when determining the need for government subsidies.

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[34] Further, the transition to IP will decrease costs from network administration and power costs, cross-connects and trunks, and trunk group administration and maintenance spares. *See Network Modernization* at 6.

[35] A Texas PUC report recently discussed basic residential local service prices for 54 small rural LECs that receive substantial federal USF support. Of these, twelve rural LECs offered service for between $5 and $6 per month, and 47 offered service at $10 or less per month. Only three identified offered prices higher than the FCC's reported nationwide average of $15.62 per month. Comments of Ad Hoc Telecommunications User Committee at 30-31, WC Dkt. 10-90, *et al.* (filed Apr. 18, 2011).

II. The Wireline Incumbent Proposal Provides Solid Groundwork for Fundamental USF/ICC Reform

Google commends the efforts of some large and rural wireline carriers to devise a USF/ICC reform proposal. Crafting a detailed compromise that encompasses support from a broad swath of the wireline incumbent carrier community is an impressive achievement. Nonetheless, only a relatively small contingent of affected stakeholders is represented in the Wireline Incumbent Proposal. Without modification or enhancement, Google believes the Wireline Incumbent Proposal would not attain the Commission's objectives of connecting all Americans to broadband and expeditiously shifting to more efficient and flexible IP networks.[36]

Certainly, the Wireline Incumbent Proposal recognizes the significant and far-reaching market and technology changes sweeping through the nation's telecommunications sector. Nonetheless, it does not go far enough to leverage the vast potential of these changes. For instance, the Wireline Incumbent Proposal would move in an economically uncertain direction by declining to include a phase-out of mandatory per-minute access charges by a date certain, and by failing to commit to reduce other charges, including originating access.[37] Moreover, extending telephone rate regulations

[36] These deficiencies have led many stakeholders to voice concerns. *See, e.g.*, Letter from S. Derek Turner, Research Director, Free Press, to Marlene H. Dortch, Secretary, FCC, 1, WC Dkt. 10-90, *et al.* (filed Aug. 2, 2011) ("Free Press Letter") (raising concerns over the ABC Plan); Letter from Steven K. Berry, President/CEO, and Rebecca M. Thompson, General Counsel, Rural Cellular Association, to Marlene H. Dortch, Secretary, FCC, at 6, WC Dkt. 10-90, *et al.* (filed Aug. 3, 2011) ("RCA Letter") (describing the ABC Plan as "fatally flawed and fall[ing] well short of the Commission's reform principles and goal of promoting universal broadband availability"); Letter from Charles W. McKee, Vice President, Government Affairs, Federal and State Regulatory, Sprint-Nextel, to Marlene H. Dortch, Secretary, FCC, on Application of LEC Access Charges to Interconnected VoIP Traffic at 2, WC Dkt. 10-90, *et al.* (filed July 29, 2011) ("Sprint Nextel VoIP ICC Letter").

[37] *See ABC Plan*, Framework of the Proposal, Attach. 1 at 10-12.

to modern networks and IP services would slow network upgrades and hinder innovation and investment.

The incumbent carrier proposal also should go farther in establishing sufficient market-based incentives to deploy fast, efficient, and competitive broadband access networks and services. Broadband competition in USF supported areas can be increased by expanding USF support beyond incumbent wireline carriers,[38] ensuring fund recipients meet public interest obligations,[39] and requiring adequate accountability and government oversight of publicly-funded broadband.[40] Moreover, the Wireline Incumbent Proposal is intended to result in the build-out of broadband access to only 2.2 million unserved households,[41] out of the 7 million households cited in the *National Broadband Plan* as lacking access to terrestrial, fixed broadband infrastructure.[42] The FCC should not adopt a proposal that leaves approximately 5 million households unserved.

The Wireline Incumbent Proposal also rightly proposes to establish a uniform rate structure for TDM traffic exchange. However, the plan to assess per-minute interstate access charges on interconnected VoIP and other forms of online voice offerings (such as "one-way") strays far from the overall goals of reform. The Commission consistently has

[38] *Cf. id.* at 6.

[39] *Cf. id.* at 7-8.

[40] *See* Public Notice at 4-5. *See also* Free Press Letter at 3 (describing how the ABC Plan would "remove all consumer protections and regulatory obligations of price-cap carriers, and would result in no meaningful oversight of the billions of dollars in [CAF] monies awarded to those carriers").

[41] *See ABC Plan*, Summary of Model Results, Attach. 2 at 2.

[42] *National Broadband Plan* at 20.

held that providers of information services are to be treated as end-users, exempt from per-minute carrier access charges.[43] This longstanding ruling has fostered tremendous innovation, opportunity, and accelerated deployment of advanced services like VoIP.

The proposed access replacement mechanism, while described as "transitional," would retain subsidies that have delayed the nation's IP transition.[44] Reform must be guided by forward-looking public policy for revenue recovery, and not by continued implicit subsidies that impede progress and impose inefficient costs on subscribers.

Despite its considerable achievement, the Wireline Incumbent Proposal, without modification, will not achieve the FCC's key reform objectives. The prospect of an "industry consensus" is admittedly attractive but in reality is limited to a subset of all wireline incumbent carriers. This "consensus" excludes the rest of the telecommunications and Internet "ecosystem" – that is, tech companies, online service providers, large business users, and many others. These many and varied voices should not be ignored. The FCC should be guided by the far-reaching impact its policies will have on consumers, other network users, service providers, innovators, and investors.

III. The Tech/Users Framework Proposes Modifications to the Wireline Incumbent Proposal to Help Meet the Objectives of USF/ICC Reform

A. The Tech/Users Framework Would Leverage Broadband and All-IP Networks to Fuel Growth and Innovation

The Tech/Users Framework would maximize the benefits of modern IP networks and transition away from outdated and inefficient regulatory approaches designed for

[43] *See, e.g.*, *In the Matter of Access Charge Reform,* First Report and Order, 12 FCC Rcd. 15982, ¶ 50 (1997) ("[W]e adopt in this Order our earlier tentative conclusion that incumbent LECs may not assess interstate access charges on information service providers (ISPs)").

[44] *See ABC Plan*, Framework of the Proposal, Attach. 1 at 12-13.

networks using TDM technology. By providing explicit, direct subsidies for broadband deployment and operations, and keeping IP traffic and services free from legacy charges that decrease consumer welfare, the Tech/Users Framework creates economically rational incentives to encourage broadband deployment and IP upgrades. Recognizing that the value of a network is ultimately derived from its users, the Commission should reform ICC to minimize the financial and regulatory burdens on users, promoting efficient utilization of the network and all of the social and economic benefits that flow from it.

The Tech/Users Framework also puts the country on a path to broadband universalization. The proposed broadband support mechanisms assure accountability by requiring provider recipients to demonstrate need and by imposing targeted public interest obligations on subsidy recipients.[45] Further, the Tech/Users Framework suggests a path to broaden the USF contributions base so that sufficient funding is available to achieve the goal of universal broadband access in a manner affordable to American consumers. Google offers below some additional details and concepts to build on the Tech/Users Framework.

B. Intercarrier Compensation Reform Should Maximize Consumer Welfare and Create Incentives to Modernize Networks

i. Traffic Exchange Rates Should be Economically Rational

TDM-to-TDM: The FCC should encourage the shift to more modern, efficient, and flexible IP networks by swiftly phasing down high per-minute carrier access charges by 2016 for traffic exchanged on TDM-to-TDM basis. These charges eventually should

[45] *See* Kerry/Warner Letter ("Any new broadband program must include strong accountability measures to ensure that funds are being spent to achieve goals including universal broadband access, high-quality service, and greater broadband adoption. . . . [Funding] should be conditioned on reasonable access and interconnection requirements.").

be phased out as networks become all IP. A reduction in today's above-cost per-minute access charges will drive carriers to transition to all-IP networks that enjoy lower operating costs and expanded revenue opportunities. Although they should not become a permanent or guaranteed subsidy, Subscriber Line Charges ("SLCs") also could play an immediate or gradual useful role in the reform effort.[46]

IP-to-TDM: During the transition to all-IP networks, traffic exchange issues for IP-to-TDM traffic will persist. By establishing bill-and-keep as the unified pricing methodology for any traffic that touches an IP network (*i.e.*, originates or terminates on an IP network), the FCC would foster innovation and investment.

Bill-and-keep best reflects the economic costs and efficiencies of terminating or originating IP traffic. In 2008, the FCC used a conservative usage and pricing model to estimate that the incremental cost of delivering voice service over an IP network was roughly $0.0000001 per-minute.[47] At that time, the FCC recognized that "the cost of voice traffic on a broadband network is vanishingly small. . . . [A]s carriers move to an all IP broadband world, the incremental costs of terminating voice calls should drop

[46] NPRM at ¶¶ 579-84.

[47] *See 2008 Order and ICC/USF FNPRM* ¶ 261. Further, a study by Lemay-Yates Associates found that the incremental cost to deliver traffic over a local network ranges between approximately $.01 per gigabyte in a high customer density, high utilization scenario, to $.07 per gigabyte in a low customer density, low utilization scenario. Lemay-Yates Associates, *The Cost of Incremental Internet Transit Bandwidth in the Local Cloud* 29-30, Mar. 28, 2011. Assuming a data rate of 80 Kbps in each direction, converting these costs to the per-minute cost of a voice call yields a cost of between $.000012 and $.000084 per-minute. *See also* Letter from Devendra T. Kumar, Counsel to Netflix, to Marlene H. Dortch, Secretary, FCC, GN Dkt. 09-191, WC Dkt. 07-52 (filed May 10, 2011) (attachment).

dramatically."[48] Since then, network costs have continued to decline. Because terminating and originating traffic cost virtually nothing in an all-IP world, bill-and-keep increases incentives for innovation and investment by all network users and maximizes consumer welfare.

By contrast, applying access rates to IP-to-TDM would be overly compensatory. Even a rate of $0.0007 per minute greatly exceeds the costs of traffic origination and termination.[49] In fact, imposing such arbitrary rates would undermine the goals of Section 706 of the Telecommunications Act and the FCC's objectives by hindering IP advanced services deployment.

IP-to-IP: Parties frequently exchange IP-to-IP traffic based upon capacity or the number of ports used because IP network costs generally are driven by peak-hour network utilization levels, not by the number of minutes per day that a subscriber uses the network.[50] Because voice traffic represents a tiny and shrinking portion of overall IP traffic, the FCC should not allow the "small tail" of voice traffic to wag the "big dog" of IP traffic exchange.

The FCC also should move to a less regulatory and more market-based paradigm for IP-to-IP traffic. As an initial matter, the FCC should let the market establish IP-to-IP rates and terms between local carriers. In particular, the agency need not determine

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[48] *2008 Order and ICC/USF FNPRM* at ¶¶ 260-61 ("Packet technologies, and the resulting commingling of voice and data traffic, make possible a dramatic reduction in the cost of originating and terminating voice traffic in the network. . . .").

[49] It would be irrational for the FCC to set a rate for terminating IP traffic that is a multiple of the cost it already has established for such traffic. *Compare 2008 Order and ICC/USF FNPRM* ¶ 261, *with ABC Plan*, Framework of the Proposal, Attach. 1 at 10.

[50] *See, e.g.*, *2008 Order and ICC/USF FNPRM* ¶ 261, n. 690.

whether rates should be capacity-based or reliant on another measure.[51] Instead, regulators should serve as a backstop and provide a neutral forum for dispute resolution and oversight.[52]

This approach to ICC improves upon the Wireline Incumbent Proposal by eliminating inefficiencies associated with the current system. A lengthy proposed transition for access rate reductions (including maintaining interstate rates until 2014)[53] without eventually eliminating legacy per-minute access charges will hamper a rapid and complete transition to all IP. Retaining per-minute rates divorced from costs in perpetuity would prolong the stream of implicit support for TDM and hinder the transition to more efficient rate structures, such as port-based pricing. Likewise, decreasing terminating end office access rates while locking in other rates, such as for transport and originating access, does not address all of the inefficiencies and distortions created by the ICC regime.[54] Further, replacing reduced access revenues with another source of automatic funding fails to account for other profitable revenue streams (*e.g.*, existing broadband access or wireless revenues) that carriers are or could be pursuing.

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[51] *See, e.g.*, Letter from Glenn S. Richards, Executive Director, VON Coalition, to Marlene H. Dortch, Secretary, FCC, 2, WC Dkt. 10-90, *et al*. (filed May 26, 2011); Reply Comments of Bandwidth.com, Inc. at 6-7, WC Dkt. 10-90, *et al*. (filed May 23, 2011); Sprint Nextel USF/ICC Comments at 7-8.

[52] *See, e.g.*, Letter from Karen Reidy, COMPTEL, and tw telecom inc., to Marlene H. Dortch, Secretary, FCC, at 2, WC Dkt. 10-90, *et al.* (filed Aug. 11, 2011) ("[T]he most important action the Commission can take to attain its overarching goal of promoting the deployment of broadband and IP technology is to confirm in no uncertain terms that IP-to-IP interconnection is subject to Sections 251 and 252 of the Act. . . . [T]he Commission does not need to establish detailed technical regulations governing IP-to-IP interconnection at this time").

[53] *ABC Plan*, Framework of the Proposal, Attach. 1 at 11.

[54] *Id*.

VoIP and IP: Economist Jerry Hausman explains that the Commission reasonably could expect to achieve positive effects on consumer welfare, innovation, investment, and economic efficiency "by setting low – near zero" ICC rates for VoIP traffic.[55] By contrast, hefty per-minute terminating access charges originally were designed as an "interim" measure in the 1980s. Saddling emerging VoIP and IP services and applications with such charges would increase VoIP service costs for users and providers and dampen IP and VoIP service innovation. It is nonsensical to require emerging VoIP and IP services to subsidize TDM networks through irrational charges that do not reflect today's technologies. In fact, if it is true that *reducing* rates produces enormous consumer welfare gains, then imposing new charges on emerging services (*i.e.*, *increasing* rates) will significantly diminish consumer welfare. Even "low rates" for IP services are not decreasing rates: because no charges apply today these cost inputs are not being "kept low or reduced."[56]

Expanding rate regulation to services that have not to date been subject to FCC regulations, such as "one-way interconnected VoIP," penalizes efficiency and modernization.[57] Rather than develop processes to identify VoIP traffic and services and enhance call signaling to expand regulation, the FCC should focus on moving away from

[55] *ABC Plan*, Professor Hausman Consumer Benefits Paper, Attach. 4 at 8.

[56] *Id.*

[57] *See* Public Notice at n. 57. It is not clear what services would constitute "one-way interconnected VoIP" under the Wireline Incumbent Proposal. The definition of interconnected VoIP necessarily includes the ability for users to make voice calls to, and receive calls from, the PSTN. (*See* 47 C.F.R. § 9.3) The FCC would be required to undertake a separate notice and comment rulemaking and address jurisdictional concerns to modify the definition.

the legacy paradigm and the per-minute charges that are unwanted relics of a different era.[58]

ii. Subject to Regulatory Oversight, Local IP Interconnection Should Be Governed In the First Instance by Market-Based Arrangements

As networks increasingly transition to all IP, the FCC must clarify that it has jurisdiction to mandate IP traffic interconnection by local carriers.[59] Interconnection is the mechanism that holds the network together, and the statutory obligation to offer interconnection should not be obscured by technological evolution.[60] Plainly, the FCC has authority to mandate IP interconnection between local carriers. At a minimum, Sections 251(a) and 256 create an obligation for all telecommunications carriers "to interconnect directly or indirectly with the facilities and equipment of other telecommunications carriers," as well as "to ensure the ability of users and information

[58] Public Notice at 17-18.

[59] *See* NPRM at ¶ 679. *See also Petition for Declaratory Ruling that tw telecom inc. Has the Right to Direct IP-to-IP Interconnection Pursuant to Section 251(c)(2) of the Communications Act, As Amended, For the Transmission and Routing of tw telecom's Facilities-Based VoIP Services and IP-in-The-Middle Voice Services*, WC Dkt. 11-119 (filed June 30, 2011); Letter from Charles W. McKee, Vice President, Government Affairs, Federal and State Regulatory, Sprint Nextel, to Marlene H. Dortch, Secretary, FCC, on Interconnection of IP Networks for the Exchange of Broadband Voice Traffic at 5-11, WC Dkt. 10-90, *et al.* (filed July 29, 2011) ("Sprint Nextel IP Interconnection Letter").

[60] *See* Reply Comments of PAETEC Holding Corp., *et al*. at 2-5, WC Dkt. 10-90, *et al*. (filed May 23, 2011); Sprint Nextel USF/ICC Comments at 27; Comments of XO Communications, LLC at 15-16, WC Dkt. 10-90, *et al*. (filed Apr. 18, 2011); Comments of COMPTEL at 4-7, WC Dkt. 10-90, *et al*. (filed Apr. 18, 2011); Comments of Cox Communications, Inc. at 18-19, WC Dkt. 10-90, *et al*. (filed Apr. 18, 2011); Comments of EarthLink, Inc. at 2-7, WC Dkt. 10-90, *et al*. (filed Apr. 18, 2011); Comments of Time Warner Cable Inc. at 12-13, WC Dkt. 10-90, *et al.* (filed Apr. 18, 2011). *See also* Kevin Werbach, *Only Connect*, 22 BERKELEY TECH. L.J. 1233 (2007).

providers to seamlessly and transparently transmit and receive information between and across telecommunications networks."[61]

As the FCC noted earlier this year, the nature of the particular service being carried does not necessarily impact an entity's Section 251(a) obligations.[62] Nothing in the Act's language suggests that IP-based networks should be treated differently for interconnection purposes from TDM-based networks, or any other type of communications network regardless of technology.[63] As networks transition to all IP, the FCC must ensure interconnection obstacles do not interfere with future network traffic flows.

While the Commission should allow and endorse the shift towards more market-oriented arrangements,[64] it also should ensure adequate regulatory oversight and a dispute resolution mechanism should problems arise.[65] For example, in circumstances where a local carrier refuses in bad faith to interconnect or discriminates against another provider, regulators should assist in resolving these disputes. This proposal comports with the statutory duties imposed on the FCC and on local carriers, regardless of the transmission protocols employed in their networks.

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[61] 47 U.S.C. §§ 251(a), 256. *See infra* Section IV.A.

[62] *In the Matter of Petition of CRC Communications of Maine, Inc. and Time Warner Cable Inc. for Preemption Pursuant to Section 253 of the Communications act, as Amended*, Declaratory Ruling, 26 FCC Rcd. 8259, n. 96 (2011) ("*CRC Communications*").

[63] Moreover, while Sections 251(a) and 256 create a broad baseline interconnection obligation, Sections 251(b) and (c) of the Act also may apply to IP-to-IP interconnection.

[64] *See, e.g., ABC Plan*, Framework of the Proposal, Attach. 1 at 13.

[65] *Cf. Id.* at n. 10.

C. A New Broadband Fund Should Replace Current High-Cost USF Support

The FCC already has taken a significant positive step toward USF reform through its Connect America Fund ("CAF") Notice of Proposed Rulemaking.[66] Consistent with that NPRM, the FCC should shift all high-cost subsidies[67] to support broadband deployment and operations over a phase-in period.[68] This shift should avoid flash-cuts, and completing the transition by 2016 would allow sufficient time for all parties to adjust to the new framework. To maximize accountability and efficiency, the newly-created broadband connectivity fund should have two separate distribution components: deployment and operations.

i. Support for Broadband Deployment Should Be Technology-Agnostic and Dynamic, Providing a Rapid Path for Broadband Universalization

The deployment portion of the broadband connectivity fund ("Broadband Build") would provide funding to support broadband network build-out on a one-time basis. By focusing subsidies on support for broadband deployment in unserved areas,[69] the FCC will make significant progress toward ensuring that all Americans have access to and can fully use a basic set of online applications and functions. The FCC also should adopt an

[66] NPRM at ¶ 15.

[67] The High-Cost Model Support, Interstate Access Support, High-Cost Loop Support, Local Switching Support, and Interstate Common Line Support for incumbents and competitive eligible telecommunications carriers would be replaced by the new broadband fund under the Tech/Users Framework.

[68] NPRM at ¶¶ 15, 18.

[69] Support for broadband deployment should start with the universalization target established in the *National Broadband Plan* of 4 Mbps downstream. *See National Broadband Plan* at 135; s*ee also Rural Broadband Report* at ¶ 4.

aggressive build-out schedule, not longer than three years, to serve users and promote economic growth.[70]

The States can play a critical role in ensuring efficient funding. First, the States are well-situated to assess which areas are unserved and the necessary funding requirements to meet build-out needs[71] and communicate these needs to the Commission. This process also should leverage the resources and planning developed through NTIA's State Broadband Initiative.[72]

Consistent with the FCC's regulatory principle of technological neutrality,[73] it should look beyond wireline broadband cost structures and assess whether providers with lower costs (*e.g.*, cable modem or mobile/satellite) could meet our national deployment goals.[74] Assessing deployment costs by census blocks rather than by wire centers also

[70] *Cf. ABC Plan*, Framework of the Proposal, Attach. 1 at 7 (suggesting a five-year build-out).

[71] *See* Letter from James Bradford Ramsey, General Counsel, NARUC, to Marlene H. Dortch, Secretary, FCC, at 2, WC Dkt. 10-90, *et al.* (filed July 20, 2011) ("NARUC Letter") ("The States have long been the source of innovation in dealing with these issues. We are also the 'boots on the ground.'").

[72] *See* NTIA, *State Broadband Initiative*, http://www2.ntia.doc.gov/SBDD (last visited Aug. 15, 2011). Under the State Broadband Initiative, NTIA has awarded $293 million to all 50 states, the U.S. territories, and the District of Columbia for broadband planning, resource-building, and data collection for the National Broadband Map.

[73] *See, e.g., In the Matter of Implementation of Section 224 of the Act,* Notice of Proposed Rulemaking, 22 FCC Rcd. 20195, ¶ 36 (2011) (tentatively concluding that all categories of providers should pay the same pole attachment rate for all attachments used for broadband Internet access service); *In the Matter of Amending the Definition of Interconnected VoIP Service in Section 9.3 of the Commission's Rules,* Notice of Proposed Rulemaking, Third Report and Order, and Second Further Notice of Proposed Rulemaking, GN Dkt. 11-117, *et al.* (rel. Jul. 13, 2011).

[74] *See ABC Plan*, Summary of Model Results, Attach. 2 at 1 ("All model scenarios assessed the costs for telecommunications companies to deploy wireline broadband service that is capable of delivering actual speeds of 4 Mbps download and 768 Kbps upload.").

would expand the pool of broadband technologies and providers.[75] Further, the FCC should consider adjusting subsidy amounts according to the technology used for actual deployment.[76] Mobile and satellite providers must be eligible for funding because they may be able to deploy broadband more quickly and efficiently.[77]

ii. Broadband Operations Must Efficiently Ensure Ongoing Service

The Tech/Users Framework also proposes that local carriers may seek support for ongoing broadband network operations ("Broadband Operations"). Here too, regulators should require applicants to make a showing of need, establish performance objectives, and ensure accountability and efficient use of funding. Moreover, subsidies should extend only for a defined period of time (*e.g.*, three years), and the FCC should require providers to reapply at the end of each funding period. This approach offers the FCC flexibility to adapt to marketplace and technological changes. It also improves upon the static view of broadband provisioning and operating costs described in the Wireline

[75] Using wire centers as the basis for disbursement also makes it more likely that incumbents would meet the "right-of-first-refusal" threshold of 35% deployment in a wire center.

[76] *Cf.* Public Notice at 3 ("Should the amounts determined by a model be adjusted to reflect the technology actually deployed?").

[77] *See, e.g.*, Kerry/Warner Letter ("The new program should support the deployment of broadband on a targeted, technology-neutral basis - without prejudice. In some areas, the most cost-effective service might be fixed, wireless, or satellite services."); Letter from Alison Minea, Corporate Counsel, DISH Network L.L.C., to Marlene H. Dortch, Secretary, FCC, WC Dkt. 10-90, *et al.* (filed July 8, 2011) ("Satellite broadband is the most cost effective technology for providing true broadband to many currently unserved households. Its direct and full inclusion in [USF] reform will maximize efficiency, reduce the size of the fund, and ensure that rural America has access to high-quality broadband."); Letter from Steven F. Morris and Jennifer K. McKee, National Cable & Telecommunications Association, to Marlene H. Dortch, Secretary, FCC, Attach. at 3, WC Dkt. 10-90, *et al.* (filed July 29, 2011) ("High-cost support should be disbursed in a technology-neutral manner, with support going to the most efficient providers."); Letter from John Bergmayer, Public Knowledge, to Marlene H. Dortch, Secretary, FCC, WC Dkt. 10-90, *et al.* (filed July 28, 2011) (The FCC "should not exclude any technology (such as satellite) from receiving funds" so long as the services are reasonably comparable.).

Incumbent Proposal, which locks in funding for ten years regardless of actual need.[78]

iii. Broadband Support Must Ensure Accountability and Maximize Public Benefits

The FCC should require that Broadband Build and Broadband Operations funding recipients spend public monies wisely. Consistent with requirements imposed on Broadband Technology Opportunities Program ("BTOP") funding recipients, the FCC should mandate routine independent audit requirements,[79] screening of key individuals,[80] and detailed quarterly and annual reporting requirements.[81]

Fulfilling their role as valuable partners for advancing collective universal service goals, the States could implement these verification measures as a condition of provider broadband connectivity funding. This application review and award monitoring process would ensure that funding goes where it is most needed, allowing the government to accomplish more with less.[82]

Consistent with the record developed to date, broadband connectivity subsidies

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[78] *Cf.* Public Notice at 3 ("Is ten years an appropriate time from for determining support levels, given statutory requirements for an evolving definition of universal service?").

[79] *See* Dept. of Commerce, *Pre-Award Notification Requirements for Grants and Cooperative Agreements*, 73 Fed. Reg. 7696, 7697-98 (Feb. 11, 2008) ("DOC Pre-Award Notification") (requiring audits at least once every two years for commercial entities receiving $500,000 or more); Dept. of Commerce, *Financial Assistance Terms and Conditions* 9-11 (Mar. 2008) *available at* http://oam.eas.commerce.gov/docs/GRANTS/DOC%20STCsMAR08Rev.pdf (authorizing the Department of Commerce Inspector General to conduct an audit of awardees at any time).

[80] *See* DOC Pre-Award Notification at 7697-98 (requiring key individuals, *e.g.*, each officer of a corporation, to submit to background checks by the Office of the Inspector General).

[81] *See* NTIA, *BTOP Recipient Handbook FY 2010*, 30-36 (Nov. 2010), *available at* http://www2.ntia.doc.gov/files/Recipient_Handbook_v1.1_122110.pdf#page=1. *See also* NPRM at ¶¶ 457-76.

[82] For example, the State Members of the Joint Board have suggested that "where the data [filed by a USF recipient] shows that they have substantial financial strength, their support calculation should routinely deny them support." Federal State Joint Board Comments at 55.

also should be subject to specified public interest obligations.[83] The FCC should require Broadband Build and Broadband Operations funding recipients to comply with wholesale access and interconnection obligations and open Internet rules, provide stand-alone broadband access service, and offer service to community anchor institutions.[84] Because the FCC should subsidize broadband connectivity only where there is no strong business case to offer service, support recipients are unlikely to face facilities-based competition. As a result, wholesale and stand-alone obligations will foster increased competitive choice over these publicly-funded broadband networks.

These accountability and public interest provisions will help ensure funds are used properly and avoid continued USF fraud, waste, and abuse.[85] Oversight also could help ensure prices charged for broadband services, including Internet access, are consistent with broadband goals and policies.[86]

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[83] *See, e.g., id.* at 125 (recommending several public interest obligations should be required for receipt of USF support).

[84] *See* Comments of the Wireless Internet Service Providers Association at 7, WC Dkt. 10-90, *et al.* (filed Apr. 18, 2011); Comments of New America Foundation, Consumers Union, and Media Access Project at 12-15, WC Dkt. 10-90, *et al*. (filed Apr. 18, 2011); Comments of EarthLink, Inc. at 16-18, WC Dkt. 10-90, *et al*. (filed Apr. 18, 2011); Sprint Nextel USF/ICC Comments at 42; Letter from John Bergmayer, Public Knowledge, to Marlene H. Dortch, Secretary, FCC, WC Dkt. 10-90, *et al*. (filed July 28, 2011). These obligations comport with those imposed on BTOP grantees.

[85] *See, e.g.*, Rep. Greg Walden (R-OR), Chairman, House and Energy Commerce Subcommittee on Communications and Technology, Prepared Address to the Oregon Telecommunications Association and Washington Telecommunications Association (June 7, 2011) (noting the committee had been working on principles of USF reform, including to "wring out waste, fraud, and abuse from the high-cost fund and the rest of USF").

[86] *Cf.* Public Notice at 4 (seeking comment on whether supported providers should have to report pricing and usage allowances to the FCC).

D. A Sustainable, Equitable, and Forward-Looking Mechanism Is Necessary to Fund Broadband Support

Comprehensive USF reform should consider both the distribution of broadband connectivity support and the contributions required to meet those subsidy obligations.[87] Indeed, focusing on only one side of the ledger – who will receive subsidies – while ignoring the other side of the ledger – who will pay for those same subsidies – is far from an optimal public policy approach. Unless the FCC addresses how to fund broadband connectivity, the viability of comprehensive USF reform will remain uncertain.

Today's revenue-based contribution mechanism is increasingly problematic. Contribution rates consistently exceed 10 percent, and the base of interstate telecommunications services to fund support has dwindled. Moreover, the proliferation of bundled service offerings also has made it more and more difficult for carriers and regulators to separate telecommunications from information service-derived revenues.

As a replacement for the interstate service revenues-based contribution structure, some parties, including members of the Joint Board, have proposed a connections-based framework.[88] Google and other signatories to the Tech/Users Framework agree that this method is preferable to the current mechanism.[89] Under such a methodology, contributions would be assessed on a per-connection basis, in a technologically-neutral manner, on all wireline, wireless, special access, private line, and broadband connections.

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[87] *See* NARUC Letter at 2 ("Isn't it time to look at contribution – isn't that an integral part of this process that should be addressed now?").

[88] *In the Matter of Federal-State Joint Board on Universal Service*, Report and Order and Second Further Notice of Proposed Rulemaking, 17 FCC Rcd. 24952, ¶ 70 (2002) ("[A] number of parties across various industry segments, as well as four out of five state members of the Joint Board, have supported adoption of a connection-based assessment methodology.").

[89] *See* Tech/Users Letter at 6.

To determine the specific per-connection contribution amount, the FCC should establish a base charge for low bandwidth services such as voice (*i.e.*, traditional wireline voice and "stand-alone" wireless voice without data) and low-bandwidth data connections and apply a tiered multiplier for higher-bandwidth connections. To minimize reporting burdens, the FCC could use Form 477 tiers by which providers report broadband subscriber data. The Commission also should consider changing the tiers as voice connections are replaced with broadband connections and technology advances.

This system would require only one contribution obligation per-connection even if multiple services ride over the connection. For example, a broadband customer who uses a broadband-based VoIP service would contribute only once for the broadband connection, with the total contribution calculated based upon the advertised speed of the connection. A wireless voice customer who also has a wireline telephone service would trigger contributions for both the wireline and the wireless connections.

The transition to a connections-based mechanism could be achieved reasonably quickly. A one-year transition should allow sufficient time for carriers to modify billing and reporting systems and for the Commission to modify its existing reporting forms (*i.e.*, FCC Forms 499-A and 499-Q) to reflect the new mechanism. Based on available data, and using $1.00 per-connection as the approximate base charge, the connections-based approach would generate funds sufficient to meet current USF funding levels.[90]

[90] *See Local Telephone Competition: Status as of June 30, 2010,* Table 8 (Mar. 2011); *Annual Report and Analysis of Competitive Market Conditions with Respect to Mobile Wireless,* Fifteenth Report, FCC 11-103, at 9 (rel. June 27, 2011); *Internet Access Services Status as of June 30, 2010,* Table 12 (Mar. 2010).

Assessing contributions in this manner mirrors the shift of communications networks and services to broadband and IP. It also significantly broadens the base of contributors and increases the fund's sustainability, because there will be a steady growth in the number and capacity of connections over time. It also should be easier for the FCC, USAC, and all reporting providers to administer because it avoids complex segregations of telecommunications and other service revenues, and controversies surrounding the proper regulatory classification (information service vs. telecommunications service) or jurisdiction (interstate vs. intrastate) of services.

Consistent with Section 254 of the Act, this mechanism also would be equitable because all telecommunications providers would make contributions either directly or indirectly. All providers use a "connection" to transmit and exchange traffic, including connections sold to end-users and connections used to transmit traffic to other points of the network. Contributions assessed in this way also would be fair to users, because they would pay only for the connections they use. Those users who have only one basic connection would bear the least contribution burden. Should any circumstances arise that threaten to create inequity, the FCC could fashion a complementary form of assessment to bridge the gap.

A connections-based contribution mechanism also would be superior to alternative mechanisms. For instance, assessing contributions based on telephone numbers ignores the shift away from reliance on traditional NANPA numbers. As a result, it would subject a smaller contribution base to higher contribution amounts and create inequitable burdens on subscribers who maintain more NANPA numbers regardless of whether those users heavily use telecommunications services. Likewise,

assessing contributions for information services and applications would be administratively unworkable and inequitable, and create significant legal and jurisdictional issues.[91] Smaller entities could be overburdened, while others, such as international entities, would escape payment.[92] The legal authority to extend the contribution obligation to these providers is also highly questionable.

IV. The FCC Has Ample Authority to Modernize its Regulatory Framework

A. The FCC Has Authority to Implement Efficient Traffic Exchange Rules

Ensuring reasonable traffic exchange falls within the FCC's core legal authority. Sections 251(a) and 256 of the Act expressly instruct the FCC to promote interconnection and interconnectivity between networks, including IP networks. Nothing in the Act limits this authority to legacy technology networks.

The authority delineated in Section 251(a)(1) is broadly phrased to apply to "[e]ach telecommunications carrier," which on its face includes local carriers engaging in IP-to-IP and IP-to-TDM network interconnection, not just TDM-to-TDM

[91] *See e.g.*, Letter from Karlen Reed, Counsel for National Telecommunications Cooperative Association at 20, to Marlene H. Dortch, Secretary, FCC, Attach. at 20, WC Dkt. 06-122, *et al.* (filed Sept. 30, 2009) ("Expanding the base of USF contributors to include Internet service engine companies such as Google, Ask.com, Bing, and Yahoo would help the Commission in its efforts to achieve the goal of providing sustainable and affordable broadband Internet access services to all Americans"); Comments of ITTA at 20, WC Dkt. 10-90 *et al.* (filed Apr. 18, 2011) ("ITTA urges the Commission to broaden the contribution base so that businesses that rely on the broadband network to provide their services contribute to the support and expansion of that network through universal service mechanisms").

[92] To the extent these proposals would require a user to pay for applications that run on top of an underlying connection, a user would likely have to make two USF payments (when they pay for their broadband connection and when they use applications). This would increase consumer costs and the providers' reporting and collection burdens. Moreover, increasing the cost of using online applications and services dramatically undermines the goal of encouraging broadband adoption and usage.

interconnection.[93] Section 251(a) further provides for interconnection "directly or indirectly;" thus, it is expressly within the Commission's discretion to require direct interconnection even in instances in which it has not done so previously.[94] The Commission has stressed that the Section 251(a) obligation ensures the "most efficient technical and economic choices" are available to requesting local carriers.[95]

The Communications Act also requires the FCC to oversee "the effective and efficient interconnection of public telecommunications networks."[96] Congress directed the FCC in Section 256 of the Act to oversee "network planning" and gave the FCC broad rulemaking authority to implement traffic exchange rules.[97] Section 201(b) of the Act also provides the Commission ample authority to adopt rules concerning IP interconnection between carriers in furtherance of the principles underpinning Sections 251(a) and 256(b)(1). Indeed, the Supreme Court has explained that "the grant in [Section] 201(b) means what it says: "[T]he FCC has rulemaking authority to carry out the 'provisions of this Act,' which include [Sections] 251 and 252, added by the Telecommunications Act of 1996."[98]

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[93] 47 U.S.C. § 251(a)(1); *CRC Communications* at ¶ 27.

[94] 47 U.S.C. § 251(a).

[95] *In the Matter of Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*, First Report and Order, 11 FCC Rcd. 15499, ¶ 997 (1996) (subsequent history omitted).

[96] 47 U.S.C. § 256(b)(1).

[97] *Id.*

[98] *AT&T Corp. v. Iowa Utils. Bd.*, 525 U.S. 366, 378 (1999). In *AT&T Corporation*, the Court recognized a seminal expansion in the Commission's authority, concluding that "Congress, by extending the Communications Act into local competition, has removed a significant area from the States' exclusive control." *Id.* at 381, n. 8.

The FCC also has authority to set a uniform pricing methodology for all traffic. First, Section 2(a) of the Act provides for the Commission's jurisdiction over interstate traffic and Section 201 provides broad authority for the Commission to carry out the purposes of the Act, including promoting IP networks that are more efficient, decrease costs, and encourage innovative and improved services.[99] Section 201(b) provides express authority to ensure the rates for such traffic are "just and reasonable."[100] Moreover, Section 252(d) permits the Commission to design a pricing methodology for all Section 251(b)(5) traffic, which includes IP-to-TDM traffic,[101] and authorizes the FCC to elect a bill-and-keep system for the exchange of traffic even to the extent it imposes a pricing methodology on intrastate traffic.[102]

Section 251(g) of the Act further underscores the FCC's authority to adopt a unified compensation scheme for all traffic. By expressly carving out access traffic and grandfathering the terms and limits from the 1982 AT&T Consent Decree, Section 251(g) confirms that Section 251(b)(5) was intended to apply broadly to all traffic, interstate and intrastate.[103] Section 251(g) further authorizes the FCC to "supersede[] by regulation[s]"

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[99] *See supra* Section I.

[100] *See Core Communications,* 592 F.3d at 143.

[101] Section 251(b)(5) of the Act imposes on all LECs the "duty to establish reciprocal compensation arrangements for the transport and termination of telecommunications." By using "telecommunications," Congress chose the most broadly defined term possible that is "not limited in geographic scope (e.g., 'local,' 'intrastate,' or 'interstate') or confined to particular services (e.g., 'telephone exchange service,' 'telephone toll service,' or 'exchange access')." *See* NPRM at ¶ 513; *see also* Comments of Verizon at 42-46, WC Dkt. 10-90, *et al.* (filed Apr. 18, 2011).

[102] *AT&T Corp.*, 525 U.S. at 284; *WorldCom, Inc. v. FCC,* 288 F.3d 429, 434 (D.C. Cir. 2002) ("[T]here is plainly a non-trivial likelihood that the [FCC] has authority to elect [bill-and-keep] (perhaps under §§ 251(b)(5) and 252(d)(B)(i).").

[103] NPRM at ¶ 514, n. 750 (*citing U.S. v. AT&T Co.,* 552 F. Supp 131, 227, 232-34).

the intrastate access charge systems that temporarily are grandfathered and adopt a single compensation scheme under Section 251(b)(5).

Finally, Section 706 of the Telecommunications Act of 1996 also supports FCC action to establish a new, more efficient pricing methodology that encourages the transition to all-IP networks. As described above, Congress directed the FCC to "encourage the deployment on a reasonable and timely basis of advanced telecommunications capability to all Americans . . . by utilizing . . . methods that remove barriers to infrastructure investment" and to take "immediate action to accelerate deployment" of broadband.[104] The Commission has found that Section 706 provides the agency with "a specific delegation of legislative authority to promote the deployment of advanced services," including broadband.[105] While the FCC has determined that all-IP networks will spur broadband deployment and adoption, it also has recognized that current traffic exchange rules can undermine this effort.[106] Uneconomic access charges skew carriers' incentives away from transitioning to all-IP networks and deploying broadband services, and implicit access subsidies discourage investment in IP infrastructure and interconnectivity.[107] Thus, Section 706 authorizes the FCC to remove these barriers by implementing a uniform pricing methodology to effectuate the IP transition.

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[104] 47 U.S.C. §§ 1302 (a), (b). *See supra* Section IV.A.

[105] *See In the Matter of Preserving the Open Internet*, Report and Order, 25 FCC Rcd. 17905, ¶ 122 (2010).

[106] *See* NPRM at ¶ 506; *see also National Broadband Plan* at 142 (noting that the "current per-minute ICC system was never designed to promote the deployment of broadband.").

[107] *See supra* Section II.

B. The FCC Has Express Authority to Support and Fund Broadband Deployment and Operations

In Section 254(b) of the Act, Congress specifically directed that the FCC's policies be based on the principle that "[a]ccess to advanced telecommunications and information services should be provided in all regions of the Nation."[108] Section 254(b) "indicates a mandatory duty on the FCC" to follow this principle when setting universal service policies.[109] Recognizing the need to adapt to technological and market changes, Congress left to the FCC the decision of when and how to implement the advanced services goals of Section 254.[110] Likewise, Section 254(c)(1) contemplates a new and evolving definition of universal service when necessary to promote robust, universally available broadband.[111]

Parties have also pointed out that Section 706(b) provides the Commission authority to "take immediate action to accelerate the deployment of such [advanced telecommunications] capability by removing barriers to infrastructure investment and by promoting competition in the telecommunications market.[112] The Commission itself has

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[108] *See* 47 U.S.C. § 254(b)(2); *see also* 47 U.S.C. § 254(b)(3).

[109] *Qwest Corp. v. FCC*, 258 F.3d 1191, 1200 (10th Cir. 2001).

[110] *Alenco Commc'ns, Inc. v. FCC*, 201 F.3d 608, 615 (5th Cir. 2000) (holding that Section 254(b) shows a "congressional intent to delegate difficult policy choices to the Commission's discretion.").

[111] The Joint Board affirmatively has recommended that broadband be a supported service. *See In the Matter of Federal-State Joint Board on Universal Service*, Recommended Decision, 25 FCC Rcd. 15598, ¶ 4 (2010); *see also* AT&T USF/ICC Comments at 112-17 (explaining in detail that broadband services may be supported under the language of Section 254).

[112] *See* 47 U.S.C. § 1302(b); *see also* NPRM at ¶¶ 66-67; Letter from Heather Zachary, Counsel to AT&T, Inc., at 2, to Marlene H. Dortch, Secretary, FCC, WC Dkt. 10-90, *et al.* (filed June 21, 2011); AT&T USF/ICC Comments at 117 ("Quite apart from [S]ection 254, the Commission also may rely on [S]ection 706(b) as a *direct* source of authority for adoption of a broadband support mechanism.") (emphasis in the original).

concluded that advanced telecommunications capabilities are not being deployed in a reasonable and timely fashion to all Americans.[113] Properly implemented, a broadband connectivity fund would directly fulfill this statutory mandate by removing barriers to investment and providing necessary funding for carriers to build out robust broadband networks.

A connections-based universal service contributions mechanism directly fulfills the Act's requirements to ensure that "[e]very telecommunications carrier that provides interstate telecommunications services shall contribute, on an equitable and nondiscriminatory basis," to the USF.[114] All telecommunications carriers will pay into the fund either directly as providers of connections or indirectly as resellers of connections. In fact, a connections-based mechanism arguably meets the statutory criteria better than a revenues-based system: it assesses the burdens of contribution more fairly across all users of connections and eliminates exceptions and "safe harbors" for certain users or providers.

CONCLUSION

Google urges the Commission to adopt forward-looking universal service and intercarrier compensation reform as set forth here and in the Tech/Users Framework. Reform should phase-out, rather than expand, inefficient carrier access charges, as well as affirm the FCC's jurisdiction to facilitate local IP interconnection, and promote broadband deployment through targeted subsidies and rational, sustainable contributions

[113] *In the Matter of Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion,* Seventh Broadband Progress Report and Order on Reconsideration, 26 FCC Rcd. 8008, ¶ 2 (2011).

[114] 47 U.S.C. § 254(d).

to fund build-out and operations. These concrete steps will encourage the rapid deployment of broadband and the transition to all-IP networks and promote investment, innovation, and opportunities for all Americans.

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